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The Operating Performance of Firms Conducting Seasoned Equity Offerings: Evidence from the Nordics

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Abstract

This thesis focuses on the operating performance and the stock returns of companies conducting seasoned equity offerings (SEOs) in Sweden, Denmark, Norway and Finland between 2005 and 2015. Using a variety of operating performance measures, I find that the issuing companies consistently underperform their peers both before and after the issue. This is reflected on poor post-issue stock returns. An individual significant negative issuer effect is found on stock returns.

Keywords Seasoned equity offerings, Operating performance, Equity issues

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1. Introduction

Prior studies have provided proof that firms conducting seasoned equity offerings (SEOs) do not only perform worse than their peers on the stock market after equity issues, but they also show deteriorating post-issue operating performance. Loughran and Ritter (1997) document a consistent fall in issuers operating performance immediately after SEOs in the United States during 1979-1989. This is reflected in low stock returns after high returns before the issue. The phenomenon has important macro-economic implications and it is closely connected to investor biases. The over-optimism derived from focusing on recent performance can be value destroying if the new equity issues are overvalued. In this thesis, I document that both the operating performance and stock returns performance of SEO issuer differs from their peer companies in the Nordic countries between 2005 and 2015, but the underperformance phenomenon has very different implications. I study SEOs conducted in Sweden, Denmark, Norway and Finland.

By examining a sample of 404 SEOs, the peer companies of the issuers and stock market returns, I address 1) the operating performance of the issuing firms compared to their peers, 2) the subsequent market-adjusted stock market returns, 3) differences in patterns between small and large issuers, 4) the existence of an individual issuer effect in stock returns once the company growth is taken into account. I reflect my results on the ones of prior studies on similar topics, which are mostly conducted during the 1990's focusing on the U.S. markets of the preceding decade. The obvious differences between the sample periods and geographic locations form an interesting point of view into the research topic. The equity markets have experienced significant transformations during the last 20 years and my topic has not received considerable attention since the turn of the century.

My results are varying. The firms conducting SEOs consistently underperform their peers in operative measures around the issue year. The issuers display deteriorating performance before the issue and do not recover notably afterwards. The median profit margin is 3.84 percent three years before the issue, 2.07 in the beginning of the issue year and 2.93 percent three years after the issue. During the same period, the peer companies have 1.5 percentage points higher margins. This pattern is repeated when inspecting returns on assets or earnings before interest, taxes, depreciation and amortization (EBITDA) divided by revenues. The underperformance is more pronounced for smaller issuers that also have worse performance overall. At the same time, the issuers have higher market capitalizations relative to the book value of equity than their peers throughout the seven-year analysis period centered on the issue.

Over half of the sample is concentrated on years 2009-2011 and I examine this period separately while comparing the median operating performance measures of the issuers and their peers to the rest of the sample. The pre-issue deterioration in performance, which is seen in the complete sample of 404 SEOs, is substantial amongst the companies conducting SEOs during 2009-2011, while the other half of the issuer sample shows steady pre-issue performance. This indicates that the financial crisis affected the SEO market by possibly motivating offerings through necessity as capital markets slowed down and the operating environment worsened.

Interestingly, a slight post-issue improvement in operating performance measures can be seen across the issuers, but this is not reflected on the stock returns. On the contrary, the mean 1-year pre-issue stock returns are 22 percent while the first post-issue year produces mean stock returns

of 3.8 percent. Investors could to underreact to news about recent operating performance and emphasize other factors in their decision making.

I find that, unlike previous studies, my sample does not indicate a clear relation between high company growth and low stock returns. A large portion of the issuers are fast-growing firms and the companies that have the fastest pre-issue revenue growth, perform inconsistently and generally poorly compared to companies with lower growth. A consistent growth effect on stock returns is not found, but at the same time, a negative and significant individual issuer effect is present in the sample.

2. Literature Review

The stock returns of companies issuing equity, both in seasoned equity offerings and initial public offerings (IPOs), increasingly caught the attention of researchers in the beginning of the 1990's. The previous decade provided a boom in SEOs and IPOs during 1982 and 1983, thanks to the strong bull market and resulting high valuations in the United States. The issuing activity was cyclical and opportunistic raising questions about the sensibility of these booms and their implications on both stock returns and operating performance of the issuing companies. The financial research community took the task to study the consequences.

Jay Ritter published a study in 1991 concerning the long-run underperformance of common stock subsequent to IPOs and documented weak performance compared to non-issuing peers during the three years following the issue. Other studies by Aggarwal and Rivoli (1990), Loughran and Ritter (1994), and Loughran, Ritter and Rydqvist (1994) confirmed this underperformance while digging deeper into the possible reasons behind the phenomenon and expanding the scope outside the U.S. market. Ritter speculates that the poor aftermarket performance is due to firms acting on 'windows of opportunity' surfacing at the peak of industry trends. This requires investors overvaluing stocks in specific industries. The study began a series of studies on similar topics. However, at this point the research was more limited to the stock returns and investigating the aftermath of the issue trends, leaving the operating performance to a side role.

Healy and Palepu (1990) found that SEO announcements do not convey information about future stock returns. They examine 93 industrial companies from the U.S. during 1966-1981 and find no significant earnings underperformance compared to the pre-issue numbers or the industry medians. They begin a sequence of studies on SEOs with the later ones having contradicting results due to differing sample periods and research methods.

Spiess and Affleck-Graves (1995) built on the earlier studies and focused their research on the long-run underperformance of stock returns following SEOs. While comparing their findings from SEOs conducted in the U.S. between 1975 and 1989, to post-IPO underperformance research, they find striking similarities. They conclude that the underperformance phenomenon is not exclusive to IPOs while comparing the issuing firms to matching companies. They argue that the post-SEO underperformance is caused by information asymmetry between the management and new shareholders. Once again, the underlying operating performance and possible earnings management are only briefly discussed.

Kinnunen, Keloharju, Kasanen and Niskanen (2000) provide a Nordic insight to the underperformance of firms conducting SEOs in their study *Earnings management and expected dividend increases around seasoned share issues: evidence from Finland*. This study provides evidence that higher discounts on newly issued shares lead to larger expected dividend increases. The

issuing companies manage their earnings to report higher earnings in excess of their current dividends. The researchers argue that their study indicates a connection between earnings management and SEOs to strengthen the perception of the company's quality before the issue. While dividend policies are not the main focus of my thesis, this study is still relevant concerning the underlying reasons for the operating performance patterns inside companies conducting SEOs as it takes a deeper look into the earnings performance of the issuing firms. It also links the Finnish capital markets to the international post-SEO underperformance phenomenon.

Siew Hong Teoh, Ivo Welch and T.J. Wong (1998) examine an earnings management hypothesis behind the underperformance of firms conducting SEOs and report consistent results from 1979 to 1989 backing the hypothesis. High pre-issue net income growth powered by accounting adjustments (accruals) is followed by a return to the normal after the issue, resulting in deteriorating performance on paper. Overly optimistic investors misinterpret the high pre-issue net income as good performance. The issuing companies outperform their peers clearly on the issue year but fall behind immediately afterwards due to the unsustainable net income levels. They study the actual cash flows of the issuing companies to determine that they are significantly lower than industry medians. The findings include that discretionary current accruals predict disappointing post-issue stock returns. The study concludes that the earning management hypothesis has strong evidence and in a way concludes the succession of research on the topic.

The most relevant study concerning my thesis was published in 1997 by Tim Loughran and Jay Ritter. Their article, *The Operating Performance of Firms Conducting Seasoned Equity Offerings,* again studies the performance of issuing firms compared to matched peer companies. The most interesting aspect of the study is the width of performance measures used. They take into account a wide array of operating performance measures outside earnings and connect their developments around the issue year to the stock returns. This study shows significant proof of earnings management preceding the SEOs in the United States between 1979 and 1989. In line with other research on the topic, in their sample the performance of issuing companies immediately deteriorates quickly after the SEO and the phenomenon is found using a variety of measures. The study served as the epitome of research done by Loughran and Ritter on similar topics and I follow their methodology in my thesis.

The research activity on the underperformance of companies conducting SEOs fizzled out after the two aforementioned studies published in 1997-1998 and the last 20 years have seen significantly less research on the phenomenon internationally. My thesis is meant to apply the earlier research methods to the modern Nordic market conditions. The 1980's U.S. equity markets largely differs from the ones of North Europe during a time of significant market turbulence. If the earnings management and high valuations motivated the SEOs during the eighties, the Nordic SEO boom between 2009 and 2011 could have been triggered by financial distress. Because of these apparent differences, I find my research question interesting and as I document, the underperformance phenomenon has very different implications in my sample. To take a broad look at the reasons behind conducting SEOs in my sample companies, I chose to apply most of the measures used by Loughran and Ritter (1997) to sufficiently compare the performance of the companies.

3. Data

The SEO data used in this study consists of all the SEOs conducted in Nasdaq Stockholm, Nasdaq Copenhagen, Oslo Børs and Nasdaq Helsinki between 2005 and 2015. Early 2000s are excluded as a survivorship bias is present in the data available on Refinitiv Eikon (less data available for delisted companies) and the performance data from the early 2000's is varying in coverage. This data includes a total of 1450 SEOs. Following the example of many previous studies on operating performance and equity issues, I exclude financial institutions from the sample. This removes 87 SEOs. Cornett and Tehranian (1994) provide insights to market reactions to involuntary bank offerings while the high leverage of financial institutions also distorts accounting ratios**.** The SEO data is derived from Refinitiv Eikon.

3.1. Restrictions for the Sample Companies

Several restrictions are implied for the sample. The issuing firms need to be present on Refinitiv's database with data concerning the issue size, type and date. I only include issues that are cash offers of common stock to exclude equity issues that are not targeted to the public. As the study is about operational performance over multiple years, I follow the methodology of Loughran and Ritter (1997) as well as Healy and Palepu (1990) and exclude all SEOs conducted by the same company during the four years after another SEO that is in my sample. This is done to reduce the dependence of the statistical test as the operational performance is studied for three fiscal years preceding and following the fiscal year of the issue. This further removes 730 SEOs.

The issuing firms also have to have total assets of at least $20 million in the end of the fiscal year of the issue. The values are measured according to 2019 purchasing power. 195 SEOs are removed because of this. The only other restriction is that data concerning sales, net income, stock returns and assets needs to be available on Refinitiv Eikon for the fiscal year of the issue. The restriction is not applied for other years around the issue. This excludes 34 SEOs from the data and 404 SEOs are left in the sample.

Table 1 reports the issues by calendar year, general industries of the issuing companies (defined by two-digit standard industrial classification (SIC) codes), and exchange where the issuing company is listed. 51 percent of the sample is concentrated on the three years following the financial crisis (2009-2011). This activity is could be explained by the challenging operating environment and the resulting shortage of capital during the period. According to the pecking order theory (Myers & Majluf, 1984) this would be logical as the availability of debt and firms' capacity to carry it are limited during an economic crisis. After 2011 the activity reduces sharply.

3.2. Benchmark Companies

To evaluate the operating performance of the issuing companies, a benchmark is needed to ensure that the documented phenomena are not just a product of the overall market or industry conditions. Each issuing firm is matched with a non-issuing firm. This match is based on industry, asset size and operating performance. This method takes into account industry characteristics, company lifecycle and size to provide a fair starting point for the evaluation of operating performance.

Following the algorithm of Loughran and Ritter (1997) and the inspiration behind their method, Barber and Lyon (1996), the possible matches have to be listed on one of the same exchanges as my sample companies: Nasdaq Stockholm, Helsinki, Copenhagen or Oslo Børs. The companies cannot have issued equity during the four years preceding the sample company's SEO date. Their operating performance has to be available on Refinitiv Eikon for the issue year.

Table 1: Number of Seasoned Equity Offerings (SEOs) by Issue Year, Industry and Exchange of Listing between 2000 and 2015

The sample includes 404 SEOs issued in Sweden, Norway, Denmark and Finland between 2005 and 2015. Financial institutions (The Standard Industrial Classification (SIC) codes 6000-6299), offerings issued within four years after an earlier one by the same company, offerings by companies with assets under $20 million (2019 purchasing power) at the end of the issue year and companies with lacking performance data for issue year are excluded from the sample. Industrial classification is based on a two-digit SIC code.

Panel A: Number of SEOs by Calender Year		
Year	Number of Offerings	Percentage of Sample
2005	9	2 %
2006	9	2 %
2007	13	3 %
2008	25	6 %
2009	58	14 %
2010	63	16 %
2011	84	21 %
2012	29	7 %
2013	38	9 %
2014	35	9 %
2015	41	10 %
Total	404	100 %
Panel B: Number of SEOs by Industrial Classification		
Industry	Two-Digit SIC code	Number of Offerings
Oil & Gas Extraction	13	24
General Building Contractors	15	9
Food & Kindred Products	20	13
Paper & Allied Products	26	12
Chemical & Allied Products	28	37
Industrial Machinery & Equipment	35	21
Electronic & Other Electric Equipment	36	24
Instruments & Related Products	38	11
Water Transportation	44	35
Real Estate	65	20
Holding & Other Investment Offices	67	27
Business Services	73	48
Engineering & Management Services	87	20
Other		103
Panel C: Number of SEOs by Exchange of Listing of the Issuing Firm		
Exchange	Number of Offerings	Percentage of Sample
Stockholm	141	35 %
Copenhagen	54	13 %
Helsinki	70	17 %
Oslo	139	34 %

Companies with total assets size between 25 and 200 percent of the sample company (the $20 million limit in asset size is also applied) are then picked from the same industry (defined by two-digit SIC codes). The company with the closest normalized earnings before depreciations and amortization, interest and taxes (EBITDA) to total assets ratio is then chosen as the matching firm.

If no such companies are found within the same industry, a matching firm is then picked from the non-issuing sample with total assets between 90 and 110 percent of the issuing company. The one with the closest EBITDA/Total Assets ratio is chosen.

4. Time-series Patterns

4.1. Performance Measures and Median Operational Ratios

Accounting ratios are often skewed and median operating performance are often reported in literature because of that*.Table 2 documents the median operating performance measures for issuers and non-issuers. The reported measures are normalized earnings before interest, taxes, depreciation and amortization (EBITDA) divided by total assets, return on assets (net income including extraordinary items/total assets), profit margin (net income including extraordinary items/total revenue), normalized earnings before interest and taxes (EBIT) divided by total revenue, normalized EBITDA divided by total revenue and market capitalization to book value of equity.

Table 2 reports the issuer median measures, non-issuer median ratios and the Z-statistics testing the yearly equality of distributions as well as the equality of distributions between the change in ratios from year 0 to year +3 between the two samples using the Wilcoxon Matched-Pairs Signed-Ranks test.

The issuer medians on Panel A show a pattern where the measures deteriorate until the year of the issue. An upwards bump is seen during the issue year and the one following it, but the measures decline soon after during years +2 and +3. This pattern combined with the issues concentrating on years with challenging business environment could indicate that in my sample, the companies experience a deteriorating financial situation and issue equity out of necessity because of the sluggish capital markets. The stable market-to-book ratios combined with falling performance ratios could also result in a compelling situation to do so.

Panel B documents the non-issuers experiencing a similar drop in median measures during the same time period, but with smaller effects. The starting point for the measures is higher and they do not deteriorate as quickly. They also recover slightly during years 0 and +1, but do not start to decline after that. This could indicate a stronger base performance for the non-issuing firms that also carries them after the market recovers. Interestingly, the median market-to-book ratios are lower than they are for the issuing firms. This supports the theory conserning valuation levels affecting the will to issue equity.

*For example Kaplan (1989), Healy and Palepu (1990), Mikkelson, Partch, and Shah (1997), and Loughran and Ritter (1997) report median values.

Table 2: Median Operating Performance Measures for Firms Conducting Seasoned Equity Offerings and their Peer Companies

Panel A reports median measures for 404 issuing firms that are present on Refinitiv Eikon for their issuing year. Panel B reports the same measures for matching firms. The match is determined as follows: i) companies with assets between 25 and 200 percent of the sample company from the same industry (defined by two-digit SIC codes) are picked and the company with the closest earnings before depreciations and amortization, interest and taxes (EBITDA) to total assets ratio is then chosen as the matching firm or ii) if no companies with the specified asset size are found within the industry, the one with the closest EBITDA/assets ratio is picked from the non-issuing sample with assets between 90 and 110 percent of the issuing company. The reported median measures are return on assets (net income including extraordinary items/total assets), profit margin (net income including extraordinary items/total revenue), normalized earnings before interest and taxes (EBIT) divided by total revenue, normalized earnings before interest, taxes, depreciation and amortization (EBITDA) divided by total revenue and market capitalization to book value of equity. These median values are reported for seven fiscal years around the equity offering with the issue year being year 0. The Z-statistics test the equality of distributions for matched pairs of observations using the Wilcoxon signed-ranks test

Fiscal Year relative to offering	EBITDA/ Assets	ROA	Profit margin	EBIT/Sales	EBITDA/ Sales	Market/ Book	# of Firms
Panel A: Issuer Medians							
-3	9.23	3.52	3.89	6.48	10.65	1.56	384
-2	8.60	2.59	2.84	6.44	10.80	1.39	398
-1	7.23	1.66	2.07	5.44	10.27	1.50	402
0	7.73	2.47	2.84	5.39	10.67	1.46	404
1	9.01	2.83	3.17	6.44	11.26	1.48	404
2	7.92	2.63	3.32	6.16	10.27	1.44	404
3	7.51	2.14	2.93	5.76	10.20	1.53	403
Panel B: Non-issuers Medians							
-3	9.69	4.18	4.36	6.57	10.84	1.31	366
-2	9.28	3.82	4.19	7.03	10.74	1.30	379
-1	8.55	3.64	3.82	6.51	9.98	1.16	404
0	8.30	3.71	4.38	6.92	10.55	1.29	404
1	8.61	3.74	4.03	7.00	10.96	1.28	404
2	9.00	3.98	4.19	7.43	12.01	1.32	404
3	8.74	3.73	4.31	7.52	11.55	1.37	404
Panel C: Z-Statistics Testing the Yearly Equality of Distributions Between the SEOs and Matching Nonissuers using the Wilcoxon Matched-Pairs Signed-Ranks Test							
-3	-1.54	-2.14 *	-2.42 **	-2.33 **	-2.55 **	1.60	349
-2	-1.77 *	-2.76 **	-2.81 **	-2.74 **	-1.77 *	1.35	375
-1	-1.48	-4.01 ***	-3.47 ***	-2.82 **	-2.20 *	4.46 ***	402
0	-2.46 **	-4.19 ***	-3.03 **	-3.57 ***	-2.65 **	4.36 ***	404
1	-1.11	-2.68 **	-2.01 *	-1.99 *	-2.05	3.09 ***	404
2	-1.99 *	-3.85 ***	-3.37 ***	-3.43 ***	-2.62 **	2.34 **	404
3	-2.80 **	-3.74 ***	-2.59 **	-2.65 **	-1.96 *	1.85 *	403
Panel D: Z-Statistics Testing the Equality of Distributions Between the Change in Ratios from Year 0 to Year +3 using the Wilcoxon Matched-Pairs Signed-Ranks Test							
Time period	EBITDA/ Assets	ROA	Profit margin	EBIT/Sales	EBITDA/ Sales	Market/ Book	# of Firms
Year 0 to +3	-1.02	0.18	0.11	-0.28	-0.29	-3.08 **	403

After the seven year period the non-issuing firms have around 1.5 percentage points higher median operating performance measures despite having lower median market-to-book ratios. Overall, these changes during the event period and the differences between the issuers and non-issuers are more muted than those of Loughran's and Ritter's (1997) similar study from the 1980's United States and the issuing companies' strong performance preceding the issue cannot be detected. This could be due to the characteristics of my time period and the sample issues concentrating on years 2009-2011. The Nordic markets saw deteriorating performance throughout thanks to the financial crisis and the turbulence continued after a short recovery as the euro crisis began. I will examine the SEOs conducted during the financial crisis later in more detail.

Figure 1 plots the profit margin medians from Table 2 for the issuing and non-issuing firms as well as the market-to-book ratios. Three years preceding and following the issue year are included. This illustrates the sharply deteriorating profit margins for the issuers while the market-to-book ratios remain stable. The difference between the two samples in terms of the relationship between profit margins and market-to-book ratios is apparent.

To measure statistical significance between the two samples, I compute Z-statistics to perform a Wilcoxon matched-pairs signed-rank tests of the hypothesis that the distribution of issuer and non-issuer ratios are identical. The difference in operating performance ratio between issuer i and its matching firm be denoted by

$$d_i = Ratio\ (SEO_i) - Ratio\ (Matching_i)$$

I then rank the absolute values of d_i from lowest to highest (for year 0, n = 404). The ranks of the positive values of d_i are summed, with this sum denoted as D. The Z-statistics are computed as follows:

$$Z = \frac{D - E(D)}{\sigma_D}$$

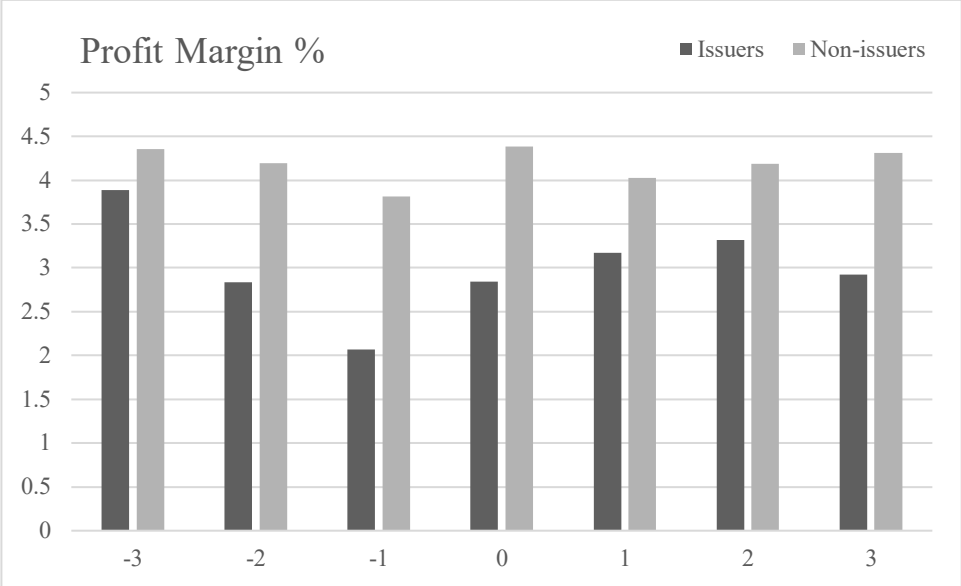
$$E(D) = \frac{n(n+1)}{4}$$

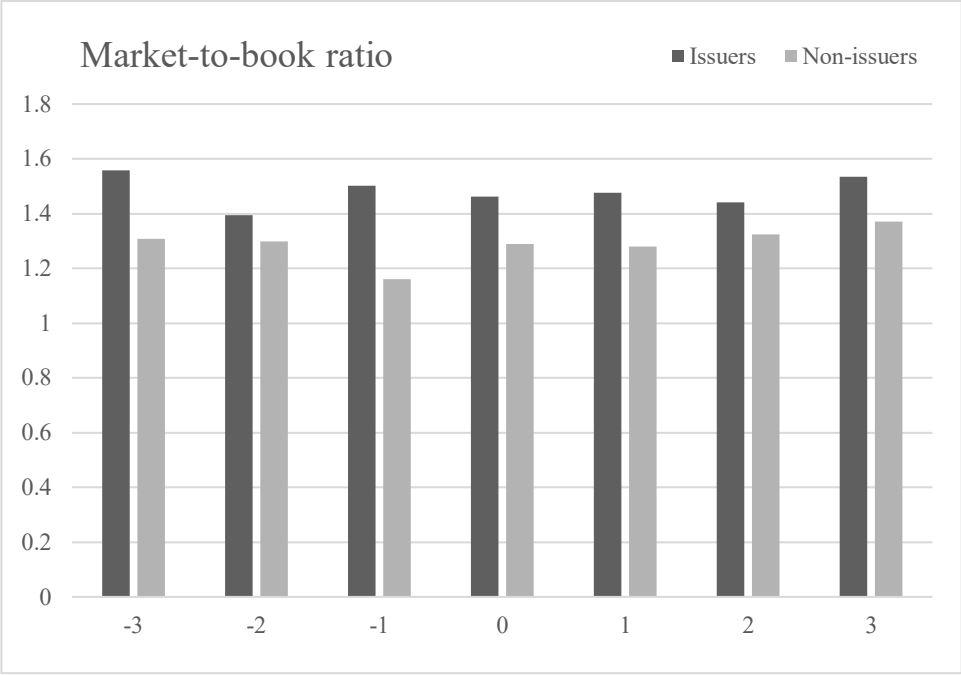
$$\sigma_D^2 = \frac{n(n+1)(2n+1)}{24}$$

If the null hypothesis of equal distribution holds, profitability ratios are drawn from the same distribution and the Z-statistics should follow a normal distribution. These Z-statistics are reported in Panel C of Table 2.

Figure 1. Profit margins and market capitalization/book value of equity for the median issuer and non-issuer.

Median ratios for 404 firms conducting SEOs and their matching peer companies. The match is determined by industry, asset size and normalized earnings before depreciations and amortization, interest and taxes (EBITDA) to assets ratio. The median values are reported for seven fiscal years around the equity offering with the issue year being year 0.





In Table 2 we can see the domination of the non-issuing companies in the performance measures. EBITDA to assets is the measure with the smallest difference as it was the measure used to pick the matching firms. The differences between the two samples are statistically significant measured by ROA, profit margin, EBIT margin and EBITDA margin. The gap is widest before and after the issue at years -1 and 0 once again signaling that the sample offers are issued during

profitability pressures. The difference in market-to-book ratios is also significant starting from year -1 for the advantage of the issuing companies supporting the hypothesis of high valuation leading to willingness to issue equity. This difference starts to fizzle out after the issue.

Panel D reports the Z-statistics testing the equality of distributions between the changes in measures from year 0 to year +3 using the same Wilcoxon Matched-Pairs Signed-Ranks test. The results concerning the profitability measures are not significant and they vary across the board, but the tightening gap between the market-to-book measures of the issuing and non-issuing companies can be clearly seen. The lack of consistent differences in the changes in ratios signal that issuing companies are already in distress compared to their non-issuing peers and the fact does not change during the years following the issue.

While I report median values in this thesis, similar results are found in the aggregate data as well. Stable revenues and growing assets are unmatched by the deteriorating net income. Especially assets, but also revenues, experience strong growth before the issue while net income falls. Similar patterns can be found with mean measures.

4.2. Operating Performance Categorized by Asset-Size Quartiles

To further analyze the median measures and the consistency of the underperformance in the SEO sample, I examine the issuing firms categorized by their assets in fiscal year 0 relative to the issue (measured by 2019 purchasing power). The sample is split into four quartiles with the cutoffs being at $113.2 million, $315 million and $1,445 million of total assets. I report the median EBITDA/assets in Panel A and the median profit margins in Panel B for issuers and non-issuers for each of the asset size quartiles across the seven fiscal year period centered on the year of the offering.

Measured by the EBITDA/assets ratio, the companies with the smallest assets perform significantly worse than their peers during the whole seven year period with harsh performance deterioration before the issue. From year +1 they recover, but interestingly their peers experience the same bump and outperform them clearly. Non-issuing small companies do not see their EBITDA/asset measure deteriorating before the issue year. This supports the hypothesis that the SEOs are partly motivated by financial distress. The changes in ratios between year 0 and year +3 are not statistically significant due to the brief recovery of the issuing firms after the SEO.

The performance of the second smallest issuing quartile is dramatically stronger compared to the smallest one. Here the measures of the issuers and their peers move closely together until the years +2 and +3 where the issuers start falling behind with the results having statistical significance in the third year as well as in the comparison between changes in ratios between years 0 and +3. A striking gap of 7.91 percentage points differentiates the median EBITDA/assets of the smallest issuers from the same median measure of the second quartile. The deterioration of the median measure is also much more muted preceding the issue year. This could indicate different underlying motivations behind the SEO between the smallest and lower-mid-sized companies.

Surprisingly the second largest issuer quartile has very similar measures compared to the non-issuers. The median measures are close to the ones of the third largest quartile, but this time the performance of the issuers does not fall behind from the non-issuers. The largest companies perform with similar patterns as the second and third largest quartiles, while showing underperformance during years +1, +2 and +3.

Panel B documents the median profit margins and they seem to follow the pattern seen in the EBITDA/assets measures, but with more notable underperformance of the issuers. Largest companies also gain an advantage when compared to the second and third largest quartiles. Overall the median profit margins rise along with the asset size in the samples. This difference between the EBITDA/assets and profit margin ratios could be a result from differing balance sheet structures between small and large companies as depreciation, amortization, interest and taxes are taken into account in the latter measure. The median profit margin for smallest companies on the fiscal year of the issue is a shockingly low – 8.24 percentages. The smallest companies underperformed their peers that already had poor performance compared to larger companies. Also notable is the profit margin underperformance of the issuing large companies compared to their peers; where the difference was not statistically significant with EBITDA/assets measures, the profit margins of the issuers are lower with statistical significance on years -2, -1 and +3.

In previous studies on the same topic, most notably in the one conducted by Loughran and Ritter (1997), the smallest issuers have outperformed their peers before the issue and all quartiles underperformed their non-issuing peers afterwards. All issuing quartiles also showed higher profit margins than their peers during years -1 and 0 with statistical significance. My results do not align with earlier research concentrated on the 1980's and this seems to indicate that the conditions where my sample SEOs were conducted are in fact very different.

Although the median operating performance ratios are widely used both by Loughran and Ritter (1997) as well as in the literature in general, the two aforementioned researchers point out that using the median measures has conceptual problems concerning covariance between size and profitability that cannot be ignored. A highly profitable growth firm can offset the negative effect of many smaller firms when looking at market returns or macro-economic changes. Because of this, the median measures do not capture the performance of the market as a whole. To tackle this problem to some extent, Table 4 documents the aggregate numerators divided by the aggregate denominators for the performance measures used earlier. By following the example of Loughran and Ritter (1997), I continue to categorize the sample companies by asset size to limit the dominating effects of singular large companies. As significance levels are difficult to compute for these performance measures, they are left out.

The measures are calculated as follows: for example, the portfolio profit margin of the smallest quartile on year -3, -4.22 percent, is derived from the sum of the net incomes of 101 sample companies divided by the sum of their total revenues. Panel A reports the ratios for the issuing companies and Panel B reports them for the matching non-issuing companies.

The results are clear. Issuing companies underperform their peers across the board in all quartiles. However, the difference in performance measures becomes smaller the bigger the companies get. This is in line with the median results, but here the effect is more consistent. The largest two quartiles of issuers even outperform their peers in post-issue EBITDA/assets ratios. In addition to the tightening gap in performance measures, the measures also become significantly higher as the companies grow. The smallest issuers experience the harshest pre-issue deterioration while having alarming ratios already on year -3. Their peers do not show profitable numbers either. Tables 3 and 4 show similar results supporting the qualitative conclusions.

Table 3. Median Operating Ratios for Issuer and Matching Non-issuer Firms Categorized by Asset Size Quartiles, for 404 Seasoned Equity Offerings (SEOs) from 2005-2015

Assets (dollars, measured in 2019 purchasing power) are measured at the end of the fiscal year of the offering and companies are assigned into quartiles. Matching companies are assigned to the issuers and the match is determined by industry, asset size and normalized earnings before depreciations and amortization, interest and taxes (EBITDA) divided by assets measure. The median values are reported for seven fiscal years around the equity offering with the issue year being year 0. The reported measures are median EBITDA/assets and profit margin (net income including extraordinary items/total revenue). The Z-statistics test the equality of distributions for matched pairs of observations using the Wilcoxon signed-ranks test.

	Fiscal year relative to issuing							
	-3	-2	-1	0	1	2	3	0 to +3
Panel A: Median EBITDA/Assets for the Seven Fiscal Years Centered on the Year of Issuing								
First Quartile: Total Post Issue Assets Between $20 Million and $113.2 Million								
Issuers	2.78	1.69	-0.49	0.70	4.78	3.65	5.19	
Nonissuers	3.27	4.03	4.79	3.75	5.42	6.96	6.54	
Z-stat	-1.66*	-2.14*	-2.33**	-3.38***	-2.35**	-3.13***	-1.55	0.30
Second Quartile: Total Post Issue Assets Between $113,2 Million and $315 Million								
Issuers	9.40	8.83	8.96	8.61	9.50	9.18	7.84	
Nonissuers	9.71	9.87	9.04	8.50	9.49	10.02	8.75	
Z-stat	-0.03	-1.48	-0.19	-0.90	0.13	-1.05	-2.59**	-1.70*
Third Quartile: Total Post Issue Assets Between $315 Million and $1,445 Million								
Issuers	9.28	9.51	7.91	8.03	9.63	8.91	8.35	
Nonissuers	10.72	9.16	7.92	8.41	8.72	8.46	9.00	
Z-stat	-0.77	0.81	0.94	-0.12	1.89*	1.72*	0.54	0.58
Fourth Quartile: Total Post Issue Assets between $1,445 Million and $69 Billion								
Issuers	10.45	11.47	9.73	9.88	9.64	8.74	8.81	
Nonissuers	10.47	10.73	9.93	9.73	9.90	10.12	9.89	
Z-stat	-0.60	-0.35	-0.92	-0.24	-1.54	-0.75	-2.14**	-1.60
Panel B: Median Profit Margins for the Seven Fiscal Years Centered on the Year of Issuing								
First Quartile: Total Post Issue Assets Between $20 Million and $113.2 Million								
Issuers	-1.28	-3.48	-6.90	-8.24	-1.89	-2.64	-0.42	
Nonissuers	0.94	1.20	1.77	0.14	1.80	1.76	0.00	
Z-stat	-1.56	-1.29	-2.59**	-2.47**	-1.49	-2.37**	-0.76	1.17
Second Quartile: Total Post Issue Assets Between $113,2 Million and $315 Million								
Issuers	4.15	2.60	2.83	2.27	2.76	3.04	2.77	
Nonissuers	4.46	4.31	3.34	4.51	4.12	4.37	5.02	
Z-stat	0.12	-1.61	-0.49	-2.15*	-0.80	-3.01**	-1.81*	-0.55
Third Quartile: Total Post Issue Assets Between $315 Million and $1,445 Million								
Issuers	4.08	3.57	2.57	4.75	5.53	4.59	3.90	
Nonissuers	5.68	4.10	3.93	5.40	3.86	4.63	4.59	
Z-stat	-2.75**	-0.75	-0.83	-0.55	-0.26	-0.14	-0.40	0.07
Fourth Quartile: Total Post Issue Assets between $1,445 Million and $69 Billion								
Issuers	6.17	6.20	6.06	5.33	6.46	6.08	4.49	
Nonissuers	6.70	6.92	7.94	6.40	7.64	6.57	6.54	
Z-stat	-0.82	-2.07*	-2.97**	-0.74	-1.52	-1.32	-2.36**	-0.74

Table 4. Operating Performance Measures for Issuers and Their Matching Firms Categorized by Asset Size Quartiles, with Performance Measures Calculated as the Portfolio Aggregate Numerator Divided by the Portfolio Aggregate Denominator, for 404 Seasoned Equity Offerings (SEOs) from 2005-2015

Total assets are measured (in dollars of 2019 purchasing power) at the end of the fiscal year during which the SEO occurred. Companies are then ranked and assigned into quartiles. The reported measures are profit margin (net income including extraordinary items/total revenue), return on assets (net income including extraordinary items/total assets) and normalized earnings before interest, taxes, depreciation and amortization (EBITDA) to assets. Panel A reports the portfolio measures for the issuing firms and Panel B reports them for matching firms (the match is determined by industry, asset size and EBITDA/assets ratio).

		Panel A: Issuing Firms			Panel B: Nonissuing firms		
Fiscal Year Related to the Offering	N	Profit Margin	ROA	EBITDA/ Assets	Profit Margin	ROA	EBITDA/ Assets
First Quartile: Total Post Issue Assets Between $20 Million and $113.2 Million							
-3	94	-4.42	-4.15	2.77	-2.86	-2.64	2.33
-2	100	-7.04	-6.45	0.18	-2.09	-2.09	3.15
-1	101	-13.63	-12.18	-3.50	-1.62	-1.55	3.17
0	101	-14.45	-12.93	-1.87	-3.19	-3.06	2.75
1	101	-6.43	-5.87	0.84	-0.98	-1.00	5.06
2	101	-8.45	-7.62	-0.41	0.64	0.66	6.85
3	101	-3.41	-2.85	3.52	1.05	1.07	5.99
Second Quartile: Total Post Issue Assets Between $113.2 Million and $315 Million							
-3	99	2.97	2.83	9.26	3.43	3.05	8.81
-2	100	-0.04	-0.04	7.27	3.54	3.29	9.15
-1	100	0.37	0.35	7.90	3.28	2.98	8.89
0	101	0.91	0.85	8.57	4.30	3.87	9.64
1	101	1.69	1.50	8.24	4.19	3.60	9.43
2	101	2.05	1.81	8.98	4.79	4.24	10.07
3	101	3.09	2.72	8.11	3.71	3.24	10.18
Third Quartile: Total Post Issue Assets Between $315 Million and $1,445 Million							
-3	93	2.91	2.41	9.18	5.85	4.82	9.54
-2	99	3.51	2.76	9.94	4.76	3.83	9.48
-1	101	1.05	0.80	7.84	2.42	1.90	9.35
0	101	3.80	2.85	8.42	6.00	4.57	9.12
1	101	5.69	3.95	9.38	6.28	4.52	8.88
2	101	6.34	4.31	10.16	5.36	3.95	9.30
3	101	4.96	3.12	9.39	4.62	3.49	9.43
Fourth Quartile: Total Post Issue Assets between $1,445 Million and $69 Billion							
-3	98	7.00	5.25	12.90	7.59	4.44	9.45
-2	99	6.68	4.81	12.43	7.95	4.47	8.89
-1	100	5.53	3.84	11.92	7.93	4.24	8.99
0	101	6.04	3.92	10.87	7.96	4.21	8.97
1	101	6.09	4.04	11.98	6.71	3.50	8.52
2	101	5.31	3.44	10.54	7.70	3.46	7.97
3	100	4.82	3.00	9.75	10.01	4.43	7.90

4.3. Pre- and Post-Financial Crisis SEOs Compared to SEOs Conducted during the Crisis

As my sample period of 2005-2015 includes a period of major economic turbulence and over half of the 404 issues in the sample are concentrated on years 2009-2011, I document the median EBITDA/assets measures and profit margins for the companies conducting their SEOs during these years, and for their peers separately in Table 5. The same measures are presented for the companies conducting their offers during the other eight years of the sample period. Panel A has the EBITDA/assets measures centered on the fiscal year of issuing for the 2009-2011 sample, while Panel B documents them for the 2005-2008 and 2012-2015 sample. Panels C and D document the profit margins in the same order.

Two different patterns can be found in Table 5. The measures for the companies conducting SEOs outside the three year period are stable throughout the seven years centered on the fiscal year of the issuing, with the profit margins improving slightly before the issue. Despite this, both performance measures show lower values compared to the matching non-issuing companies with the difference having statistical significance on the issue year.

The 205 offerings between 2009 and 2011 tell a different story. Noticeable pre-issue performance deterioration can be seen for the issuing companies. The peer companies show similar deterioration but with less drastic effects. Both of these groups end up with much worse performance measures at year +3 compared to the ones of year -3. Interestingly, the performance ratios for the year -3 are much higher for issuers and non-issuers in the 2009-2011 sample compared to the issuing and non-issuing firms in the 2005-2008 and 2012-2015 sample. This is probably due to the fact that years 2005 to 2008 saw very few issues (56) and as a result, the year -3 relative to the issue is between 2009 and 2011 for most of the offerings in the 2005-2008 and 2012-2015 sample. Thus, these overlapping periods coinciding with a difficult economic environment can explain this pattern.

Definitive conclusions are hard to draw from the results presented in Table 5, but a difference in patterns and performance is clear between the samples from the two time periods. This could indicate differing circumstances motivating the SEOs. Dried up capital markets during the financial crisis could have influenced the heightened issuing activity in the Nordics between 2009 and 2011. According to Myers (1984) and his pecking order theory, a limited availability of debt financing could result in more equity offerings. Further research would be needed as little recent research on public equity offerings can be found to provide insights to the effects of the global financial crisis on the issuing activity.

Table 5. Median EBITDA/Assets and Profit Margin for Issuers and Matching Non-issuing Firms Categorized by Issue Years for 404 SEOs from 2005-2015

In Panels A and B, EBITDA/Assets is defined as normalized earnings before interest, taxes, depreciation and amortization divided by assets. In Panels C and D, profit margin is defined as net income including extraordinary items divided by total revenue. The Z-statistics test the equality of distributions for matched pairs of observations using the Wilcoxon signed-ranks test.

	Fiscal Year Relative to the Year of Issuing							
	-3	-2	-1	0	1	2	3	0 to +3
Panel A: Median EBITDA/Assets for Offerings between 2009 and 2011 (N = 205)								
SEOs	11.02	10.13	7.31	7.76	9.50	8.06	7.57	
Matching	11.37	8.96	8.47	8.80	9.44	9.32	8.92	
Z-statistic	-0.45	-0.83	-1.01	-1.49	-1.12	-1.70*	-2.61**	-1.09
Panel B: Median EBITDA/Assets for Offerings from Years 2005-2008 and 2012-2015 (N = 199)								
SEOs	7.54	7.51	7.23	7.46	8.61	7.55	7.50	
Matching	9.17	9.47	8.76	7.85	8.47	8.46	8.47	
Z-statistic	-1.77*	-1.78*	-1.13	-1.99*	-0.46	-1.12	-1.33	-0.37
Panel C: Median Profit Margin for Offerings between 2009 and 2011 (N = 205)								
SEOs	4.94	2.74	1.36	2.65	2.95	2.75	2.77	
Matching	5.71	3.89	3.18	3.86	3.90	3.98	4.02	
Z-statistic	-1.91*	-2.17*	-2.35**	-2.47**	-0.77	-2.04*	-2.65**	0.55
Panel D: Median Profit Margin for Offerings from Years 2005-2008 and 2012-2015 (N = 199)								
SEOs	2.73	3.04	3.66	3.44	3.46	3.91	3.35	
Matching	3.28	4.48	4.25	4.56	4.19	4.63	4.66	
Z-statistic	-1.55	-1.94*	-2.56**	-1.88*	-2.06*	-2.68**	-1.13	-0.33

5. Operating Performance Changes and Stock Returns

5.1. The Investment Performance of Issuing Firms

This section documents the market-adjusted stock returns of the issuing firms and their matched peer companies. The stock returns are mostly calculated for the five years following the fiscal year of the issue. Annual arithmetic return on portfolio p is defined as

$$r_p = \frac{1}{n}\sum_{t=1}^{5}\sum_{i=1}^{n_t} r_{it}$$

where r_{it} is the annual returns on firm i in event-year t, n_t is the number of surviving firms in event-year t, and n is the total number of firm-year observations. Because of this, if return data is available in Refinitiv Eikon for the five years following the issue date, full five years are counted and if the

data only covers, for example, 1.5 years due to delisting, two years of annual returns are counted. Time is measured in relation to the beginning of the issuing month and as a result, the performance measures that are calculated on a fiscal year basis (usually the full calendar year in the Nordics) do not correspond directly. When investigating the returns as dependent of sales growth and conducted offerings, the annual returns are calculated starting from the beginning of calendar year +1 relative to the issue. The average SEO is issued at June so the portfolios are formed an average of six months after the offering. Thus, the returns are calculated based on data affected by the investors' evaluations of the issuing companies' performance after the offering.

In Table 4, I report the market reaction to the operating performance of the issuing companies. Panel A documents the stock returns for the year preceding the offer and the average annual return during the five post-issue years. Benchmark index returns are calculated as a value weighted average of Nasdaq OMX Helsinki, Nasdaq OMX Copenhagen, Nasdaq OMX Stockholm and Oslo Børs total returns over the same post-issue trading days. The values used are based on the exchanges of trading and market capitalizations of the issuing companies. The returns of the matched peer companies are also reported for the time period.

The results are consistent with the operating performance ratios. The average annual returns crash down to 7.78 percent while the returns for the pre-issue year are 22.08 percent. At the same time the index beats the issuing firms clearly with average annual returns of 11.50 percent. This is outshined by the matching firms that post annual returns of 13.46 percent during the post-issue period. The larger half of the issuing companies once again outperforms the smaller half by a large margin both before and after the issue. This pattern does not occur in the matching firms' portfolio. The poor operating performance is thus clearly reflected in returns.

Panel B of Table 4 documents the average annual returns for each of the post-issue years independently. The issuers underperform the market by a large margin during years 1 and 2, market adjusted returns are -3.95 percent and -6.79 percent respectively. After that they recover while still losing to the index. The non-issuing firms outperform the index due to a few companies having massive returns in the sample, even after the best and worst performing 1 percent of the companies are excluded.

These results differ greatly from the ones of Loughran and Ritter (1997). They document similar post-issue underperformance of the issuing companies, but with larger margins and higher statistical significance. The biggest difference is the high pre-issue returns of the issuers. This once again indicates the different market conditions and motivations for SEOs between the two research periods and markets. Loughran and Ritter report mean prior annual return on issuers of 93.1 percent with mean post-issue annual returns of 9 percent for the same group.

5.2. The Confounding Effect behind the Poor Performance: Does it still Hold Up?

Loughran and Ritter (1997) try to explain the drastic stock performance results of the issuing companies with a theory they call the confounding effect. This effect is based on the research conducted on stock market overreaction by Dreman (1982) as well as De Bondt and Thaler (1985). These researchers apply the findings of psychologists concerning tendencies for humans to overweight recent experience while underestimating the importance of long-term averages, including Kahneman and Tversky (1982), to the stock market. The tendencies of stock market to over extrapolation of recent growth has been found controversial by Lakonishok, Shleifer, and Vishny

(1994) as well as Dechow and Sloan (1997). Loughran and Ritter find the issuing firms to be high growth companies with low post-issue stock returns and hence, they proceed to test if there is an adverse relationship between these two factors. This is called the confounding effect hypothesis.

I follow the methodology of Loughran and Ritter in focusing on sales as the growth measure. They also include capital expenditure summed with research and development costs as another growth measure, but I leave it out of the analysis with the data on Refinitiv Eikon being lacking and inconsistent. Sufficient data is available for too few companies to form a clear picture.

To test the relation between firm growth and stock returns, I use the following measures to examine the market-adjusted returns: the one-year market-adjusted return, the average annual geometric market-adjusted return, the average annual arithmetic market-adjusted return and the five-year buy-and-hold market-adjusted return.

Table 6. Average Annual Returns of Issuers, Matching Non-issuing Firms and the Market during the Five Years after Issuing

In Panel A, the average annual returns are calculated for firms conducting seasoned equity offerings (SEOs) between 2005 and 2015, meeting the specific criteria used in this thesis. Matching non-issuing firms are chosen based on industry, asset size and normalized earnings before interest, taxes, depreciation and amortization (EBITDA) to assets ratio. 1-year and 5-year returns are measured from the beginning of the issuing month. Index returns are calculated as a value weighted average of Nasdaq OMX Helsinki, Nasdaq OMX Copenhagen, Nasdaq OMX Stockholm and Oslo Børs total returns over the same trading days. The weights are based on the market capitalization of the issuing firms and their exchanges of trading. In Panel A, the number of firm-years is calculated by summing the number of post-issue event-years of which the sample firms' returns are reported on Refinitive Eikon. For a majority of the firms this is 5 years. Firms in the smallest quartile have post-issue assets of $20 to $113.2 million, quartile 2 firms have assets of $113.2 to $315 million, quartile 3 firms have assets of $315 to $1,445 million and the firms in the largest quartile have assets between $1,445 million and $69 billion. In Panel B, average annual returns are reported for the 5 post-issue years. To reduce the bias in the sample, top and bottom 1% of the returns are excluded. The t-statistics are calculated assuming independence and normality.

Panel A: Average Annual Returns during the Pre- and Post-issue Periods

			Mean Postissue Annual Returns			
Asset Portfolio	Number of Firms	Mean Prior Annual Return on Issuers	Issuing Firms	VW Index	Matching Firms	Number of Firm-Years
Smallest	101	12.00 %	4.98 %	11.74 %	10.79 %	467
2	101	14.90 %	5.18 %	10.77 %	16.11 %	461
3	101	37.11 %	12.93 %	11.66 %	12.73 %	460
Largest	101	26.81 %	8.10 %	11.82 %	14.10 %	443
Total	404	22.08 %	7.78 %	11.50 %	13.46 %	1831

Panel B: Annual Returns by Event-Year for Issuers and the Value-Weighted Index

	Post-issue Event Year				
Portfolio	Year 1	Year 2	Year 3	Year 4	Year 5
SEOs	3.80 %	3.37 %	11.00 %	11.16 %	10.37 %
Index	7.76 %	10.15 %	13.26 %	14.62 %	11.80 %
Matching firms	8.58 %	8.20 %	16.41 %	17.11 %	17.76 %
Market-adjusted	-3.95 %	-6.79 %	-2.27 %	-3.45 %	-1.43 %
t-statistic	(-1.46)	(-2.71)**	(-0.93)	(-1.23)	(-0.50)
Matching-firm-adjusted	-4.78 %	-4.84 %	-5.41 %	-5.95 %	-7.39 %
t-statistic	(-1.41)	(-1.49)	(-1.69)	(-1.57)	(-2.07)*

The average annual geometric market-adjusted return on issuing firm *i* is defined as

$$\overline{r_i} = \sqrt[T]{\prod_{t=1}^{T}(1 + r_{it})} - \sqrt[T]{\prod_{t=1}^{T}(1 + r_{mt})}$$

where r_{it} is the annual return in event-year *t* on firm *i,* r_{mt} is the market return for that year, and T = min(event-year in which delisting occurs, 5). In Tables 7 and 8 I calculate the returns starting from the beginning of the calendar year following the fiscal year on which the offering was conducted as I use accounting information for the whole issuing year. The growth measure used is sales growth rate defined as the year-over-year percentage increase in sales.

In the "Proportions" column of the Table 7 a notable concentration in the high sales growth categories can be seen. The calculated yearly average returns are partly affected by individual companies with extremely high or low returns. Despite this, some patterns can be found. The non-issuers once again outperform the issuers, but surprisingly in the two highest sales growth categories the issuers offer better returns. The returns of the issuing firms seem to fall as the growth accelerates. Naturally, negative growth is not rewarded with high returns. According to Lakonishok, Shleifer and Vishny (1994), on average fast-growing firms underperform the slow-growing firms by a large margin when using any of the return metrics I use.

The average return metrics for the whole sample reduces the effect of the individual companies and these numbers show a consistent 5 percent underperformance of the issuing companies in the yearly measures. In buy-and-hold returns the difference is 17.5 percent. The reported differences are consistent with the previous research by Loughran and Ritter (1997) and Spiess and Affleck-Graves (1995) with not as pronounced effects. The smaller sample also allows the individual companies to have a larger impact on the calculated average returns.

In Table 8, I report the results of panel dataset regressions with cohort year fixed effects. The same four measures of market-adjusted returns are used, but this time the dataset includes all companies listed on Nasdaq OMX Helsinki, Nasdaq OMX Copenhagen, Nasdaq OMX Stockholm and Oslo Børs that are present in Refinitiv Database with positive fiscal year -1 and year 0 sales, with at least $20 million in year 0 assets and meeting the other criteria used in this study. All firms that issued equity during year -4 to -1 are discarded. The dataset has 5,007 observations. The revenue growth measure has no significant impact on the reported market-adjusted returns, but a clear negative issuer effect is present with the results having strong statistical significance in both of the average annual return measures. These results are not perfectly in line with the results in Table 7 but the presence of a negative issuer effect in the data is further solidified. The difference in results concerning the sales growth effect could be due to the larger sample being used here.

Table 7. Market-adjusted Abnormal Returns for Issuers and Non-issuers, Segmented Growth Rates

The average annual returns are calculated for firms conducting seasoned equity offerings (SEOs) between 2005 and 2015 meeting the specific criteria used in this thesis. Matching non-issuing firms are chosen based on industry, asset size and normalized earnings before interest, taxes, depreciation and amortization (EBITDA) to assets ratio. Market returns are calculated as a value weighted average of Nasdaq OMX Helsinki, Nasdaq OMX Copenhagen, Nasdaq OMX Stockholm and Oslo Børs total returns over the same trading days. The weights are based on the market capitalization of the issuing firms and their exchanges of trading.1-year and 5-year returns are measured from the beginning of the issuing month. For firms that are delisted early, returns are calculated until the delisting year. The annual geometric and annual arithmetic mean returns for a firm are calculated over 5 years or in the case of early delisting, until the delisting month. The sample period for issuing is 2005-2015 with the return data continuing until October 31, 2019. The percentage sales growth rate is calculated as fiscal year 0 sales minus fiscal year -1 sales, divided by year -1 sales.

Panel A: Issuers and Non-issuers Categorized by Sales Growth (SG)

					Average Percentage Market Adjusted returns							
			Proportion		1-year		Annual geometric		Annual arithmetic		5 year buy and hold	
Sales group			Issuers	Nonissuers	Issuers	Nonissuers	Issuers	Nonissuers	Issuers	Nonissuers	Issuers	Nonissuers
	SG <	-20 %	12.31 %	11.81 %	-22.01 %	-3.78 %	-16.83 %	-3.04 %	-15.10 %	0.00 %	-14.35 %	9.19 %
-20 %	< SG <	-10 %	9.05 %	10.80 %	-16.11 %	-2.92 %	-15.46 %	-4.75 %	-11.60 %	2.21 %	-44.10 %	21.59 %
-10 %	< SG <	0 %	17.34 %	20.10 %	-4.81 %	-0.57 %	-7.41 %	-2.85 %	-2.61 %	0.51 %	-4.37 %	21.31 %
0 %	< SG <	10 %	20.10 %	22.86 %	1.22 %	8.41 %	-2.54 %	1.73 %	2.35 %	5.60 %	9.16 %	40.44 %
10 %	< SG <	20 %	11.31 %	10.80 %	0.70 %	1.04 %	-7.00 %	-2.79 %	-1.12 %	0.64 %	23.23 %	-3.66 %
20 %	< SG <	30 %	6.28 %	7.04 %	0.55 %	5.54 %	-7.63 %	-5.98 %	-3.13 %	-0.77 %	5.97 %	-14.32 %
30 %	< SG <	40 %	4.77 %	3.02 %	4.55 %	29.31 %	-10.37 %	2.26 %	-2.99 %	8.12 %	11.24 %	93.51 %
40 %	< SG <	50 %	3.77 %	3.27 %	21.65 %	-9.64 %	-3.39 %	-5.41 %	3.63 %	5.36 %	4.25 %	-12.15 %
50 %	< SG		15.33 %	15.33 %	2.97 %	-8.10 %	-9.02 %	-15.73 %	-0.85 %	-4.14 %	3.19 %	-5.72 %
	All		100.00 %	100.00 %	3.80 %	8.58 %	-8.75 %	-3.44 %	-3.64 %	1.69 %	-0.17 %	17.37 %

Table 8. Panel Dataset Regressions with Cohort Year Fixed Effects, with Firm Growth and an SEO Dummy Variable as Explanatory Variables and Four Measures of Market-Adjusted Returns as Dependent Variables

The sample period for issuing is 2005-2015, with returns continuing until October 31, 2019. On December 31 of each year, firms are classified as to whether or not they conducted a seasoned equity offering (SEO) during the prior 12 months. All companies listed on Nasdaq OMX Helsinki, Nasdaq OMX Copenhagen, Nasdaq OMX Stockholm and Oslo Børs that are present in Refinitiv's Database with positive fiscal year -1 and year 0 sales, with at least $20 million in year 0 assets (measured in 2019 purchasing power), and meeting certain other criteria are used. All firms that issued equity during year -4 to - 1 are discarded. The percentage revenue growth rates are calculated as fiscal year 0 revenues minus fiscal year - 1 revenues, divided by fiscal year -1 revenues. The SEO dummy variable takes on a value of 1 if a firm conducted an SEO during the prior 12 months, and 0 otherwise. In each regression, there are 11 cohort year dummy variables. No dummy variable is present for cohort year 2015. The sample size is 5,007 observations. Market returns are calculated as a value weighted average of Nasdaq OMX Helsinki, Nasdaq OMX Copenhagen, Nasdaq OMX Stockholm and Oslo Børs total returns over the same trading days. For firms that are delisted before the end of a holding period, the market-adjusted returns are calculated until the beginning of the delisting month. The annual geometric and annual arithmetic mean returns for a firm are calculated over the maximum of either five years or, in the case of early de-listings, the number of years through which it is delisted. T-statistics are in parentheses.

$$r_i - r_m = \propto_1 \text{Revenue Growth}_i + \propto_2 \text{SEO Dummy}_i + \sum_{j=2005}^{2014} \propto_j \text{Dummy}_j + e_i$$

Panel A: Regression Results Using Market-adjusted Returns as the Dependent Variable and Revenue Growth, SEO Dummy and Cohort Year Fixed Effects as Explanatory Variables

	Parameter Estimates		
Dependent Variable	Intercept	SEO Dummy	Revenue Growth
1-Year	10.34	-5.92	-0.0001
	(2.66)**	(-0.98)	(-0.25)
Annual geometric	-9.28	-4.16	-0.00004
	(-10.24)***	(-2.72)**	(-0.41)
Annual arithmetic	-3.12	-6.92	-0.0001
	(-1.82)	(-2.60)**	(-0.43)
5-Year buy-and-hold	-10.93	-27.47	-0.0001
	(-1.09)	(-1.71)	(-0.14)

6. Conclusion

6.1. Summary

This thesis applies the theories used in previous research on the poor operating performance and stock returns of companies conducting seasoned equity offerings to the 21st century Nordic markets. The sample consists of 404 SEOs issued in Sweden, Norway Denmark and Finland during 2005-2015. The results are not perfectly aligned with the prior research done on the subject, which is focused on the U.S. markets in the 1980's. I reflect my findings on the earlier studies, most notably on the article *The Operating Performance of Firms Conducting Seasoned Equity Offerings* by Loughran and Ritter (1997).

In previous studies, the issuing companies have displayed significant over performance preceding the SEO and quickly deteriorating performance immediately afterwards. My findings imply that the issuing companies underperform their peers consistently with deteriorating performance already before the issue. After a small recovery, they fall behind once again two or three years after the issue. For example, the median issuer has a 1.5 percent lower profit margin throughout the seven fiscal years centered on the issue compared to the median of non-issuing peers, with the ratio deteriorating from 3.89 percent to 2.07 during the two years preceding the issue. During the same period, the median non-issuer has stable profit margins of around 4 percent. The smallest issuers have the weakest performance on all fronts.

As the sample period is coincided with the global financial crisis and over half of the sample SEOs are conducted during years 2009-2011, I take a look at the SEOs conducted during these years separately and compare them to the rest by inspecting the operating performance measures of the issuing companies. The companies conducting offerings between 2009 and 2011 experience drastic deterioration of operating performance measures before the issue, while the issuers that carry out their offerings outside this period have stable pre-issue performance.

The issuers have higher market-to-book multiples on all event-years compared to their peers. However, the post-issue stock returns are significantly lower than the ones of their peers or the market as a whole. Once again, the smallest issuers have the lowest returns corresponding with their poor operating performance while the larger ones also underperform but with smaller margins.

The issuing companies are often high growth firms with the share of firms posting a pre-issue yearly revenue growth of over 10 percent being 41 percent of the sample. As fast growing firms have historically had lower stock returns than low-growth firms, I follow the example of Loughran and Ritter (1997) and examine whether the low returns of the issuing firms is due to their high growth. A clear connection between growth and returns is not found and the revenue growth does not seem to have a consistent adverse effect on returns in my sample. However, a strong independent issuer effect is found with the issuers having lower returns than the overall market regardless of the growth rate.

6.2. Interpretation and Implications

It appears that the frameworks used in the research around seasoned equity offerings in the 1980's U.S. markets are not directly applicable in the 21st century Nordics. However, it is clear that the firms conducting SEOs underperform the overall market and their peers measured with a wide variety of operating performance ratios and stock return metrics.

The SEOs seem to be motivated by a variety of reasons. As Loughran and Ritter (1997), argue, some SEOs can be the result of opportunistic behavior after a stock price run-up, some offers can be conducted after systematic earnings management and others may issue equity to fill an urgent need of capital. The results of my thesis do not support the earnings management hypothesis that was popularized in the 1990's. Performance of the issuing companies is lower compared to their peers years before the issue indicating problems in the company operations. The deterioration of performance measures before the issue indicates that if some earnings are pushed back to boost the earnings in later years, the timing fails badly. The deterioration is the most drastic when inspecting the SEOs conducted between years 2009 and 2011.

The high market-to-book ratios and strong pre-issue stock returns could be interpreted as supportive evidence for the opportunistic issuance behavior hypothesis supported by Loughran and Ritter (1995). Higher than average valuation multiples and a decent stock price could motivate the management to turn to equity issues in times of capital needs if the availability of debt financing is limited, even if the market conditions and prior stock returns are not phenomenal. Most of the sample offerings are conducted during difficult times and in the case of the smallest issuing companies, the operating performance is not only worse than peers, but also alarming overall. In some situations, issuing equity could have been the only medium of financing to keep the company alive. As the research published on this topic is fairly scarce for the last 20 years, more studies on equity offerings issued due to necessity would be needed to strengthen this hypothesis. However, the numbers indicate hard times for the issuers: a median profit margin of -8.4 percent on the fiscal year of the issue for the smallest issuers cannot be healthy. The capital expenditures of the issuing companies would also be an interesting factor to look at to get a better look at the investment decisions behind the capital needs. Unfortunately, the data in Refinitiv Eikon from the Nordics is lacking on this front.

One result of this thesis is counterintuitive. The slight post-issue improvement in operating performance measures of the issuing companies after pre-issue deterioration does not correlate positively with the stock returns. Mean 1-year pre-issue stock returns are 22 percent while the first post-issue year produces mean stock returns of 3.8 percent. At the same time, the median profit margin of the issuers is 2.07 percent for the fiscal year preceding the issue and it improves to 2.84 percent for the fiscal year of the issue. One could think that these performance numbers would affect investor behavior especially as the pre-issue performance is this weak. One possible explanation is offered by Savor (2012), who argues that investors underreact to news about fundamentals and overreact to other shocks that move stock prices. As most of the sample SEOs are conducted during turbulent market conditions and the issue itself is a strong signal concerning the stock price, the small improvement in the fundamentals can be overrun by other factors affecting behavior. The investors can also postpone their decisions and the SEO can be the final blow after a period of weak operating performance, especially if the stock price is still fairly high to begin with, as the data suggest based on market-to-book ratios and pre-issue returns.

To summarize, the operating underperformance of the companies conducting SEOs is rewarded with low post-issue stock returns, but the patterns are incoherent. Further research on earnings management could bring light to the underlying factors affecting operating performance as Teoh, Welch and Wong (1998) show. The characteristics of the market for equity issues during this time period could also answer some questions about the motivations behind the SEOs as well as the investor behavior. Levis (1995), Cai (1996) and Kand, Kim, and Stulz (1996) provide proof that the investment performance of SEOs conducted in United Kingdom and Japan is similar to the ones conducted in the United States. It would be interesting to see similar, more recent research on these larger markets to evaluate the possible peculiarities of the Nordic markets. Nevertheless, poor operating performance and the subsequent low stock returns are once again found, consistent with earlier studies. The phenomenon still has important implications on equity markets.

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